

# Barco RLM W6 Serial (RS-232) Command Protocol

## ● Interface and Requirements

The RS-232 Commands use only ASCII characters which can be entered using a typical terminal emulator like Windows HyperTerminal with the following setting:

**Bits per second: 38400**

**Data bits: 8**

**Parity: None**

**Stop bits: 1**

**Flow control: None**

Note that each input character will be echoed on the terminal by MCU and there is no need to set the local echo “ON” with the terminal setting.

## ● System Operation commands.

The Operation commands tell the projector what to do. All commands start with 2 letters: “op” for operations commands, and a space [SP] then following a control command then finally the value wants to read, set, increase or decrease. All commands must end with a carriage return (ASCII hex 0D), shown as [CR] below. The syntax for operations commands is as follows:

**op[SP]<operation command>[SP]<Setting Value>[CR]**

For all but Execute functions the response from the projector will be the command and “= <value>” where <value> is the current value or “NA” if the value is not available. For Execute functions the response will be the same command. All responses will be in CAPS. Please refer to the following table for command list and examples:

System Operation command:

Operation	Commands	Values
Set	= <value>	Makes the unit take that value.
Get	?	Asks what the current value is.

Operation	Commands	Values
Increment	+	Adds 1 to the current value.
Decrement	-	Subtracts 1 from the current value.
Execute	(none)	Performs an action such as a reset.

#### Motor operation command:

For motor control like lens shift, focus and zoom, the parameters “ + ” and “ - ” are defined as follows.

Command item	command	System Action
focus	+ -	+ => Focus Near, - => Focus Far
zoomio	+ -	+ => Zoom out - => Zoom in
vert.offset	+ -	+ => Up - => Down
horiz.offset	+ -	+ => Right - => Left
Lens.center	(execute)	Midposition shift

#### Get operations command example:

Input: **op bright ? [CR]**  
System Response: **OP BRIGHT = 100**

#### Increase & Decrease operations command examples:

Input: **op bright + [CR]**  
System Response: **OP BRIGHT = 101**

Input: **op bright - [CR]**  
Response: **OP BRIGHT = 126**

#### Set operations command example:

Input: **op bright = 127 [CR]**  
System Response: **OP BRIGHT = 127**

#### Execute command example:

Input: **op auto.img [CR]**

Response: **OP AUTO.IMG**

The list of valid operation commands for Barco RLM W6 are shown in below Table.

Barco RLM W6 Operation Commands				
Command Item	Operation	Commands	Values	Notes
1-1	input.sel	= ?	0 = HDMI 1 1 = HDMI 2 2 = RGB D-15 3 = YUV 1 4 = RGBHV/YUV2 5 = Composite Video 6 = S-Video 7 = RGB-S	Note1; Note3
1-2	input.lock	= ?	0 = Auto 1 = 48 Hz 2 = 50 Hz 3 = 60 Hz	Note2
1-3	auto.powoff	= ?	0 = Off 1 = On	Note1
1-4	auto.powon	= ?	0 = Off 1 = On	
1-5	no.signal	= ?	0 = Logo 1 = Blue 2 = Black 3 = White	Note1
1-6	vid.std	= ?	0 = Auto 1 = PAL 2 = SECAM 3 = NTSC	Note2; Note4
1-7	auto.imgadj	= ?	0 = Off 1 = Auto 2 = Always	Note2
2-1	contrast	= ? + -	0 - 200	Note2
2-2	bright	= ? + -	0 - 200	Note2

Barco RLM W6 Operation Commands				
Command Item	Operation	Commands	Values	Notes
2-3	saturat	= ? + -	0 - 200	Note2; Note4
2-4	tint	= ? + -	0 - 200	Note2; Note4
2-5	sharp	= ? + -	0 - 200	Note2
2-6	nr	= ? + -	0 - 200	Note2
2-7	color.temp	= ?	0 = 3200K 1 = 5400K 2 = 6500K 3 = 9300K 4 = Native	Note2; Note8
2-8	red.offset	= ? + -	0-200	Note2
2-9	green.offset	= ? + -	0-200	Note2
2-10	blue.offset	= ? + -	0-200	Note2
2-11	red.gain	= ? + -	0-200	Note2
2-12	green.gain	= ? + -	0-200	Note2
2-13	blue.gain	= ? + -	0-200	Note2
2-14	aspect	= ?	0 = 5:4 1 = 4:3 2 = 16:10 3 = 16:9 4 = 1.88 5 = 2.35 6 = Letterbox 7 = Native	Note2; Note5
2-15	h.total	= ? + -	0-200	Note2 ; Note7
2-16	h.pos	= ? + -	0-200	Note2
2-17	h.phase	= ? + -	0-200	Note2; Note7
2-18	v.pos	= ? + -	0-200	Note2
2-19	auto.img	(execute)		Note2
2-20	color.space2	= ?	0 = Auto 1 = YUV HD 2 = YUV STD 3 = RGB-PC (0-255) 4 = RGB-Video (16-235)	Note2

Barco RLM W6 Operation Commands				
Command Item	Operation	Commands	Values	Notes
3-1	zoom	= ?	0 = Off 1 = Crop 2 = Zoom	Note2; Note6
3-2	pip.sel	= ?	1 = HDMI 1 2 = HDMI 2 3 = RGB D-15 4 = YUV 1 5 = RGBHV/YUV2 6 = Composite Video 7 = S-Video 8 = RGB-S	Note1; Note9; Please refer to appendix 1 for the valid main/pip source selection
3-3	pip.pos	= ?	0 = Top left 1 = Top right 2 = Bottom left 3 = Bottom right 4 = Split L-R	Note1; Note10
3-4	pip	= ?	0 = Off 1 = On	Note1
4-1	lamp.mode	= ?	0 = Economy 1 = Standard 2 = Dimming	Note2
4-2	lamps	= ?	0 = Single 1 = Dual	Note1; Note11
4-3	altitude	= ?	0 = Off 1 = On	Note1
4-4	lamp.pwr	= ?	0-22 ( 82.8 % ~100.0 % )	Note2
4-5	lamp1.stat	?	0 = Off 1 = On	Note1
4-6	lamp2.stat	?	0 = Off 1 = On	Note1
5-1	rear.proj	= ?	0 = front 1 = rear	Note1
5-2	ceil.mode	= ?	0 = floor 1 = ceiling	Note1

Barco RLM W6 Operation Commands				
Command Item	Operation	Commands	Values	Notes
5-3	zoomio	+ -	+ = Zoom out - = Zoom in	Motor command; Note1
5-4	focus	+ -	+ = Focus Near - = Focus Far	Motor command; Note1
5-5	vert.offset	+ -	+ = Up - = Down	Motor command; Note1
5-6	horiz.offset	+ -	+ = Right - = Left	Motor command; Note1
5-7	dyna.cont	= ?	0 = Off 1 = On	Note2
5-8	gamma	= ?	0 = 1.8 1 = 2.0 2 = 2.2 3 = 2.35 4 = 2.5	Note2
5-9	int.ptrn	= ?	0 = Off 1 = Color Bars 2 = Hatch 3 = Burst 4 = Red 5 = Green 6 = Blue 7 = White 8 = Black 9 = TI-Red 10 = TI-Green 11 = TI-Blue 12 = TI-Ramp	Note1
5-10	color.space	= ?	0 = Native 1 = EBU 2 = SMPTE 3 = Custom	Note2
5-10a	<b>Lens.center</b>	(execute)		Note1
5-11	h.keystone	= ? + -	-200~+200	Note1; Note15

Barco RLM W6 Operation Commands				
Command Item	Operation	Commands	Values	Notes
5-12	v.keystone	= ? + -	-350~+350	Note1; Note15
6-1	ir.addr	= ?	0 = remote code 1 1 = remote code 2	
6-2	eco.net.pow	= ?	0 = Off (RJ45 Power On) 1 = On (RJ45 Power Off)	
6-3	proj.ctrl	= ?	0 = rs232 1 = network	Note12
6-4	net.ipaddr	= ?	<string>	
6-5	net.subnet	= ?	<string>	
6-6	net.gateway	= ?	<string>	
6-7	net.dhcp	= ?	0 = Off 1 = On	
6-8	menu.pos	= ?	0 = Top left 1 = Top right 2 = Bottom left 3 = Bottom right 4 = center	Note1
6-9	startup.logo	= ?	0 = Off 1 = On	
6-10	startup.chime	= ?	0 = Off 1 = On	
6-11	btn.1	= ?	0 = HDMI 1 1 = HDMI 2 2 = RGB D-15 3 = YUV 1 4 = RGBHV/YUV2 5 = Composite Video 6 = S-Video 7 = RGB-S	

Barco RLM W6 Operation Commands				
Command Item	Operation	Commands	Values	Notes
6-12	btn.2	= ?	0 = HDMI 1 1 = HDMI 2 2 = RGB D-15 3 = YUV 1 4 = RGBHV/YUV2 5 = Composite Video 6 = S-Video 7 = RGB-S	
6-13	btn.3	= ?	0 = HDMI 1 1 = HDMI 2 2 = RGB D-15 3 = YUV 1 4 = RGBHV/YUV2 5 = Composite Video 6 = S-Video 7 = RGB-S	
6-14	btn.4	= ?	0 = HDMI 1 1 = HDMI 2 2 = RGB D-15 3 = YUV 1 4 = RGBHV/YUV2 5 = Composite Video 6 = S-Video 7 = RGB-S	
6-15	btn.5	= ?	0 = HDMI 1 1 = HDMI 2 2 = RGB D-15 3 = YUV 1 4 = RGBHV/YUV2 5 = Composite Video 6 = S-Video 7 = RGB-S	

Barco RLM W6 Operation Commands				
Command Item	Operation	Commands	Values	Notes
6-16	trig.1	= ?	0 = 5:4 1 = 4:3 2 = 16:10 3 = 16:9 4 = 1.88 5 = 2.35 6 = Letterbox 7 = Native 8 = Auto	Note1
6-17	trig.2	= ?	0 = 5:4 1 = 4:3 2 = 16:10 3 = 16:9 4 = 1.88 5 = 2.35 6 = Letterbox 7 = Native 8 = Auto	Note1
6-18	auto.src	= ?	0 = Off 1 = On	Note1
6-19	lang	= ?	0 = English 1 = French 2 = Spanish 3 = German 4 = Portuguese 5 = Chinese Simplified 6 = Chinese Traditional 7 = Japanese 8 = Korean	
7-1	model	?	<string>	
7-2	ser.no	?	<string>	
7-3	sw.ver	?	<string>	Note13

Barco RLM W6 Operation Commands				
Command Item	Operation	Commands	Values	Notes
7-4	act.src	?	0 = HDMI 1 1 = HDMI 2 2 = RGB D-15 3 = YUV 1 4 = RGBHV/YUV2 5 = Composite Video 6 = S-Video 7 = RGB-S	Note1
7-5	pip.src	?	0 = Off 1 = HDMI 1 2 = HDMI 2 3 = RGB D-15 4 = YUV 1 5 = RGBHV/YUV2 6 = Composite Video 7 = S-Video 8 = RGB-S	Note1
7-6	pixel.clock	?	<string>	In MHz ; Note2
7-7	signal	?	<string>	Note2
7-8	h.refresh	?	<string>	Note2
7-9	v.refresh	?	<string>	Note2
7-10	lamp1.hours	?	<string>	
7-11	lamp2.hours	?	<string>	
7-12	lamp1.reset	(execute)		
7-13	lamp2.reset	(execute)		
7-14	proj.runtime	?	<string>	
7-15	blue.only	= ?	0 = Off 1 = On	Note1
7-16	fact.reset	(execute)		
8-1	<b>CS_cust_Rx</b>	= ?	000 ~ 999	P7 Command; Note1
8-2	<b>CS_cust_Ry</b>	= ?	000 ~ 999	P7 Command; Note1

Barco RLM W6 Operation Commands				
Command Item	Operation	Commands	Values	Notes
8-3	<b>CS_cust_Gx</b>	= ?	000 ~ 999	P7 Command; Note1
8-4	<b>CS_cust_Gy</b>	= ?	000 ~ 999	P7 Command; Note1
8-5	<b>CS_cust_Bx</b>	= ?	000 ~ 999	P7 Command; Note1
8-6	<b>CS_cust_By</b>	= ?	000 ~ 999	P7 Command; Note1
8-7	<b>CS_cust_Wx</b>	= ?	000 ~ 999	P7 Command; Note1
8-8	<b>CS_cust_Wy</b>	= ?	000 ~ 999	P7 Command; Note1
8-9	<b>CS_cust_Cx</b>	= ?	000 ~ 999	P7 Command; Note1
8-10	<b>CS_cust_Cy</b>	= ?	000 ~ 999	P7 Command; Note1
8-11	<b>CS_cust_Mx</b>	= ?	000 ~ 999	P7 Command; Note1
8-12	<b>CS_cust_My</b>	= ?	000 ~ 999	P7 Command; Note1
8-13	<b>CS_cust_Yx</b>	= ?	000 ~ 999	P7 Command; Note1
8-14	<b>CS_cust_Yy</b>	= ?	000 ~ 999	P7 Command; Note1
0.1	picture.mute	= ?	0 = Off 1 = On	
0.2	power.on	(execute)		
0.3	power.off	(execute)		
0.4	text.mode	= ?	0 = Off 1 = On	Note14

Barco RLM W6 Operation Commands				
Command Item	Operation	Commands	Values	Notes
0.5	status	?	0 = standby 1 = warm up 2 = imaging 3 = cooling 4 = warning	
0.6	<b>errcode</b>	?	0=ErrMsgOverTempInlet: 1=ErrMsgOverTempDMD: 2=ErrMsgOverTempLamp1: 3=ErrMsgOverTempLamp2: 4=ErrMsgOverTempBallast1: 5=ErrMsgOverTempBallast2: 6=ErrMsgFanInitError: 7=ErrMsgFan1RotateError: 8=ErrMsgFan2RotateError: 9=ErrMsgFan3RotateError: 10=ErrMsgFan4RotateError: 11=ErrMsgFan5RotateError: 12=ErrMsgFan6RotateError: 13=ErrMsgFan7RotateError: 14=ErrMsgFan8RotateError: 15=ErrMsgDMDInitFail: 16=ErrMsgLampInitFail: 17=ErrMsgLampLitFail: 18=ErrMsgBallastUartError: 19=ErrMsgExGpioFail: 20=ErrMsgInterLockOpen: 21=ErrMsgGF9450NoResponse: 22=ErrMsgSystemI2cFail: 23=ErrMsgSoftwareI2cFail: 24=ErrMsgEepromFail: 25=ErrMsgEdidFail: 26=ErrMsgEepVersionFail: 27=ErrMsgRstGenum: 28=ErrMsgFan9RotateError: 29=ErrMsgFan10RotateError: 30=ErrMsgFan11RotateError: 31=ErrMsgFan12RotateError: 32= ErrMsgLamp2LitFail: 33= ErrMsgBallast2UartError: 34=ErrMsgGtInletTp: 35=ErrMsgGtDmdTp, 36=ErrMsgInletTempSensorFail, 37=ErrMsgDMDTempSensorFail,	
0.7	f.search	= ?	0 = F1 Search 1 = F2 Search (default)	

REMARK: An input command will get back with "NA" when the input command is "Not

Applicable" in some specific conditions.

**Note1:** Not applicable in standby mode.

**Note2:** Not applicable in standby mode or without signal locked.

**Note3:** Not applicable when picture mute is on.

**Note4:** Only valid when source is one of Composite, S-Video and RGB-S.

**Note5:** Native aspect ratio is not applicable when zoom is set to "Zoom", Letterbox aspect ratio is not applicable when the input format is one of formats as listed in appendix 2.

**Note6:** Selection "Zoom" is not applicable when aspect ratio is set to Native.

**Note7:** Only applicable when source is one of RGB D-15, YUV1 and RGBHV/YUV2.

**Note8:** Not applicable when color space is set to custom.

**Note9:** pip.sel can NOT be set to 0.

**Note10:** Not applicable when pip is off.

**Note11:** Not applicable when lamp is cooling.

**Note12:** Not applicable when eco.net.pow is on.

**Note13:** Only MCU version number will be read back in standby mode.

**Note14:** Not applicable when the internal pattern is displayed.

**Note15:** The summation of the absolute value of h.keystone and v.keystone should not be greater than 350.

### Appendix 1:

		Main Select							
		HDMI 1	HDMI 2	RGB D-15	YUV 1	RGBHV / YUV 2	Composite Video	S-Video	RGB-S
PIP Select	HDMI 1	-	O	O	O	O	O	O	O
	HDMI 2	-	O	O	O	O	O	O	O
	RGB D-15	O	O	-	-	-	O	O	O
	YUV 1	O	O	-	-	-	O	O	-
	RGBHV / YUV 2	O	O	-	-	-	O	O	-
	Composite Video	O	O	O	O	O	-	-	-
	S-Video	O	O	O	O	O	-	-	-
	RGB-S	O	O	O	-	-	-	-	-
O	Source Available								
-	NA								

### Appendix 2:

Input Format :

640x480\_75Hz\_VGA:  
 640x480\_85Hz\_VGA:  
 800x600\_75Hz\_SVGA:  
 800x600\_85Hz\_SVGA:  
 1024x768\_75Hz\_XGA:  
 1024x768\_85Hz\_XGA:  
 1280x1024\_75Hz\_SXGA:  
 1280x1024\_85Hz\_SXGA:  
 1400x1050\_75Hz